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ABSTRACT

Responses of Massachusetts groups of 200 male and 200 female delinquents to the items of the School Interest Inventory were contrasted with 200 male and 200 female nondelinquents. The same procedure was followed with an identical number of subjects in Rhode Island. Items which appeared significant at the .20 level in at least one subgroup of 100 delinquents of the same sex in each state were used to construct a male and a female delinquent scale. These two scales were used to compare responses of Connecticut groups of 134 male delinquents and 134 nondelinquents and to compare responses of 95 female delinquents with those of 95 female nondelinquents. Response differences were highly significant. This indicates that the items of each scale appear to be quite homogeneous in spite of the fact that they can be divided into seven categories by inspection of their content. (Author/KJ)

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PREDICTING POTENTIAL DELINQUENTS IN JUNIOR HIGH SCHOOL

Wm. C. Cottle

Principal Investigator

RD-2842-P-68

Final Report

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Research Brief RD-2842-P-68

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Predicting Potential Delinquents in Junior High School

Responses of Massachusetts groups of 200 male delinquents and 200 female delinquents to the items of The School Interest Inventory were contrasted with those of 200 male nondelinquents and 200 female nondelinquents. These were divided into subgroups of 100 each and subjected to chi-square item analysis techniques. The same procedure was followed with groups of 200 male delinquents and 200 female delinquents versus 200 male nondelinquents and 200 female nondelinquents in Rhode Island. Items which appeared significant at the .20 level in at least one subgroup of 100 delinquents of the same sex in each state were used to construct a male delinquent scale and a female delinquent scale. The male delinquent scale contains 61 items and the female delinquent scale contains 85 items.

These two scales were used to compare responses of Connecticut groups of 134 male delinquents with those of 134 male nondelinquents and to compare responses of 95 female delinquents with those of 95 female nondelinquents. Response differences were highly significant (far beyond the .001 level). Kuder Richardson Formula 20 reliabilities for the male delinquent scoring key ranged from .70 to .76 with a median reliability of .71. Reliabilities for the female delinquent scoring key ranged form .83 to .87 with a median reliability of .85. This indicates that the items of each scale appear to be quite homogeneous in spite of the fact that they can be divided into seven categories by inspection of their content. Thus it seems possible to use these scales to identify potential delinquents in upper elementary school grades and initiate a preventive program to minimize their becoming delinquents.

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Foreword

The research reported here constitutes a major contribution to the early detection and prevention of juvenile delinquency. Its primary value is that it is predicated on an awareness that the school is the earliest and most sensitive barometer of the onset of deviant social behavior, with the possible exception of the home. The fact that the school is the only social institution that sees every child has long been acknowledged. While Public Health programs, represented by school medical services, have long been established, it is only recently that the school has been recognized as the pivotal agency for delinquency and mental health prevention programs.

During my years of experience in the rehabilitation of delinquent children, I was repeatedly impressed with the fact that long before a child was involved with the police and courts, he was an identified school problem. This common observation among workers in the field of delinquency is what leads them to decry the failure of the school to recognize pre-delinquent signs in their incipient stage and intervene to prevent the more serious delinquency that appeared later in adolescence.

The delinquent child is an unsocialized child and while this may have its roots in early childhood experience both in the home and the immediate environment, it is in the contact with the school that the lack of socialization brings the child into conflict with the community at large. The school represents society and as such is the first to witness pre-delinquent indices. These precursors to delinquency cannot be reliably identified in the primary grades due to the difficulty in distinguishing developmental from deviant problems. However, by the pre-adolescent, or junior high school period, the asocial attitudes have crystallized sufficiently to be predictive of subsequent behavior to a significant degree.

The identification of the pre-delinquent child at the junior high school level, prior to his official police and court contact is the purpose of this study. The results are most encouraging and should be brought to the attention of educators and workers in the field of delinquency. Proliferation of these results may prevent the waste of human lives that present delinquency and criminal statistics represent.

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The work of the study could not have been done without the careful assistance of Miss Elinor Woods in planning and supervising the transfer of the data to computer cards, the design of the computer item analysis processes, and procedures for tests of significance and the checking and rechecking of the final results. The many contacts to handle and collect data on delinquent and nondelinquent boys in Rhode Island and the validation delinquent groups of both sexes in Connecticut were done by Dr. Thomas B. Uber. He also assisted Rev. Christopher M. Davenport, Ph.D., in collection of data on delinquent and nondelinquent females in Rhode Island while Father Davenport also collected data on delinquent and nondelinquent females in Massachusetts. Dr. Philip G. Patros collected the data on nondelinquents in Connecticut public schools. Mrs. Patricia O. Foley collected data on delinquent and nondelinquent males in Massachusetts. Their direct help in data gathering made the project possible.

In addition, the project would not have been possible without the cooperation of former Chief Judge Francis J. McCabe in Rhode Island and the many state personnel working there who made it possible to identify and test delinquents; Mr. Wayne Mucci, Special Assistant to the Governor in Connecticut, as well as Mr. Norman Morgan, Superintendent of the Connecticut School for Boys and Mrs. June Tanner, Director of Connecticut Long Lane School for Girls. In Massachusetts many state personnel helped with identification of delinquents for testing especially Mrs. Elizabeth Van Waters, Mrs. Beatrice Ingineri, Mr. Louis Maglio, Sr. Mary Alfreda, Mr. Paul Leahy, and Mr. Francis Ordway.

A special word of thanks is given to Dr. Francis J. Kelly of Boston College

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My thanks are also due to Mrs. Elinor Craven and Miss Claudia Schmitt for their assistance in the typing and assembly of this report.

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Preface

Ever since the development of The School Interest Inventory (SII) was initiated in 1954, I have been intrigued with the possibility of using it to predict potential school dropouts so someone in their school could work with them for their most effective placement in school or in the community, if they really needed to leave school. Using a self-report blank to provide identification of such potential dropouts seemed a more economical and parsimonious use of school resources than searching records or diverting teacher's efforts from their instructional functions. The male and female dropout scales are now a reality for The School Interest Inventory.

Quite by chance Mrs. Sue Keller, a graduate student at the University of Kansas 1959-61, asked her advisor, Dr. Richard M. Rundquist, if she might use the SII to see whether the boys whom she was teaching at the Kansas Boys' Industrial School (classified as delinquents) responded like male dropouts or produced responses different from such dropouts. We expected their responses to resemble those of male dropouts. Much to our surprise as shown in Appendix A, the responses of these male delinquents resembled those of female dropouts and females in general much more than males in general. An exception to this occurs where male dropouts, female dropouts and male delinquents answer SII items the same and different from school stayins of either sex.

Thus there appeared a small nucleus of SII items common to delinquents and dropouts of both sexes, but the greater proportion of diffentiating items in Keller's study showed male delinquents answering items more like girls than other boys.

This finding was intriguing, but time and expense made it impossible to investigate until now.

If there really are responses to the SII which permit classifying male or female delinquent responses as different from male or female dropouts, or from other males or females who comprise the bulk of the school population who remain

in school, what a help this would be to school personnel or to other government and community agencies concerned with preventing deviant behavior. What a simple way to reduce the waste of human resources represented by the delinquent, while reducing government costs devoted to care of such cases! To me identification and prevention have always seemed a wiser and more efficient course than crisis-counseling and institutionalizing individuals.

I sincerely hope that the data presented here will be used to locate boys and girls in the fifth to ninth grades and permit efforts to prevent their becoming delinquents.

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September 27, 1969

Predicting potential delinquents in junior high school

William C. Cottle

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Introduction

The School Interest Inventory (SII) was developed to predict potential school dropouts, both male and female, in junior high school before they leave school. A secondary purpose was to produce scales to differentiate between the responses most characteristic of boys, referred to as a Nonlinguistic Scale because it represents behavior centering around inanimate objects and nonlanguage activities and those responses most characteristic of girls, referred to as a Linguistic Scale because it represents behavior centering on people and language-based activities. It was hoped that these latter two scales would assist junior high school boys and girls to select courses and plan their sequence in senior high school (Cottle, 1966).

A study by Keller (1961) indicated that the inventory might also be useful in predicting potential juvenile delinquents at the junior high school level before they incurred court encounters, so that school counselors could help them avert such encounters and lead more effective lives.

The research project reported here indicates that prediction of delinquents at the junior high school level is a distinct possibility.

In Massachusetts, Rhode Island and Connecticut responses to the SII of samples of 200 delinquent males and 200 delinquent females from each state identified by encounters with the law were to be contrasted with those of 200 nondelinquent males and of 200 nondelinquent females, respectively, to see whether differences in response to items of the SII did, in fact, exist and would, therefore, permit prediction of delinquency-prone youth at the junior high school level.

This investigation was supported, in part by Research Grant No. RD-2842-68 from the Division of Research and Demonstration Grants, Social and Rehabilitation Service, Department of Health, Education, and Welfare, Washington, D.C. 20201.

There have been other attempts to identify and predict potential delinquents, notably Glueck and Glueck (1950), Kvaraceus (1953), Hathaway and Monachesi (1953), Porteus (1959), and Gough (1964). None of these, however, have proven practically or easily accomplished. It was felt that a scored scale of a self-report blank usable at the junior high school level and capable of completion withing one-half hour by the individual to be screened would cut identification time and effort to limits feasible for any school system or other agency. If this were the case, counselors in those agencies could well afford to attempt to avert or reduce delinquency.

The Model

The staff who carried out this study are described in the Acknowledgements. Both male and female delinquents within each state were to complete the inventory, and their responses were to be contrasted with those of an equal group of nondelinquents of each sex from the state. Unfortunately, it was possible to secure only 134 male and 95 female delinquents in Connecticut, so that the 200 nondelinquent males and 200 nondelinquent females were randomly reduced to equal those of the delinquent groups; the Connecticut groups were then used for a validation of the male and the female delinquent scales constructed from the Massachusetts and Rhode Island samples.

The group of 200 male delinquents and 200 male nondelinquents and the group of 200 female delinquents and 200 female nondelinquents in Massachusetts and Rhode Island as shown in Table 1 were divided into two subgroups of 100 delinquents and 100 nondelinquents for each state. Items which differentiated responses of each delinquent subgroup from their corresponding nondelinquent subgroup were identified by a computerized chi-square technique (Boston College Computer Center File No. 311.8.50). These items were combined into a delinquent response scale or scoring key by which the other subgroups of the same sex in each state were scored. Thus a double cross-validation was possible in each

state.

Then variance ratios and t ratios were computed for the validation groups. Because the groups were equal in number, whenever the variance ratio indicated unequal variances, a Cochran-Cox t was reported by entering the t table with one-half the usual degrees of freedom.

Unlike most studies of this sort where the .05 level of significance is elected, the .20 level of significance was used in the construction of the final scoring keys. The rationale for this was that if any item appeared significant at the .20 level in at least one delinquent group of the same sex in Massachusetts and Rhode Island, this indicated a much higher level of significance for that item than if it appeared as significant in any one group alone or in two groups from the same state (Sakoda, et al., 1954).

Then the items appearing at the .20 level in two or more groups as described above were combined and used as scoring keys for the male or female validation groups from Connecticut. As a check on construction processes and as a comparison among the groups in each of the three states, the Massachusetts and Rhode Island groups for each sex were scored on the appropriate .20 level scale. Then tests of significance and Kuder-Richardson reliabilities were computed for each state group as shown in Table 1.

The Results

As shown in Table 1 the standard deviation of both delinquent and nondelinquent boys in each state was approximately the same, indicating that whatever differences existed were due to variation in means between each delinquent and nondelinquent group. Each of these differences in means were highly significant. The means for each delinquent male group in each of the three states showed no significant difference and were at least ten score points higher than the mean for the corresponding nondelinquent group. There

Table 1

Sample statistics for various groups scored on final .20 Delinquency Scale

Boys' 61-item scale	N	$\bar{X}$	σ	F	t	d.f.	Sig. t	K-R20 Reliability	
Mass. Delinq vs.	200	25.91	6.62					.71	
Mass. Nondelinq.	200	15.19	5.76	1.32	17.24	398	.001	.71	
R.I. Delinq. vs.	200	27.02	6.50					.70	
R.I. Nondelinq.	200	16.29	6.35	1.05	16.67	398	.001	.76	
Conn. Delinq. vs.	134	25.62	6.65					.71	
Conn. Nondelinq.	134	14.48	5.78	1.33	14.59	266	.001	.73	
Girls' 85-item scale									
Mass. Delinq vs.	200	37.02	11.37			398		.87	
Mass. Nondelinq.	200	14.71	7.77	2.14	22.86*	(199)*	.001	.83	
R.I. Delinq. vs.	200	39.09	11.09			398		.86	
R.I. Nondelinq.	200	19.11	8.30	1.78	20.35*	(199)*	.001	.83	
Conn. Delinq. vs.	95	35.23	10.61			188		.86	
Conn. Nondelinq.	95	13.99	8.04	1.74	15.47*	(94)*	.001	.85	

* The t ratio for unequal variances where the N is equal in each sample is a Cochran-Cox t read from the table of distributions of t with one-half the usual degrees of freedom.

were no significant differences in means between the nondelinquent male groups. The Kuder-Richardson Formula 20 reliabilities computed for each group ranged from .70 to .76, with a median of .71. This indicates a fairly high degree of homogeneity or internal consistency among the 61 items of the male delinquent scale.

Table 1 shows that results are somewhat different for the groups of delinquent and nondelinquent girls in each state. The standard deviation of the delinquent group in each state was approximately the same, but considerably higher than that for the corresponding nondelinquent female group. The standard deviation for each of the nondelinquent female groups was approximately the same. These findings indicate that while the variances of delinquent and nondelinquent female groups were unequal, the Cochran-Cox test of significance showed that difference in means between delinquent and nondelinquent female groups in each state was still highly significant. Reference to Table 1 shows that the means of each delinquent and nondelinquent female group had at least twenty score points difference. The Kuder-Richardson Formula 20 reliabilities computed for each group ranged from .83 to .87, with a median of .85. This indicates a high degree of homogeneity and internal consistency among the 85 items of the female delinquent scale.

Discussion

Table 2 shows the items significant in the 61 item male delinquent scale. Of these, 41 are scored true and 20 false. There are 44 items that were common to Keller's study (1961). Twenty-seven of the 61 items are common to those of the SII Boy Dropout Scale and Girl Dropout Scale. Thus there appears to be a core of 27 items answered the same by boy and girl dropouts and by boy delinquents. There are 35 items common only with girl delinquents and there are 23 items which are unique to boy delinquents. Other items common only to boy

Table 2

Items of the SII significant in the delinquency scale for each sex

Males				Females			
T		F		T		F	
1	66	2		7	64	2	79
4	67	3		8	66	13	80
6	75	10		12	67	16	85
8	82	14		20	69	18	101
11	84	18		22	73	19	102
12	88	19		25	75	21	108
15	94	21		32	81	24	111
22	97	36		34	87	31	118
23	105	38		37	88	35	122
25	113	55		38	90	42	126
34	121	72		39	92	48	134
35	123	76		40	93	60	136
37	125	80		43	96	65	140
45	128	101		45	97	72	142
46	131	115		49	98	76	146
47	133	117		50	99		
50	135	126		51	100		
51	138	136		52	103		
52	143	142		54	105		
53	145	147		56	106		
61				58	112		
				61	125		
				62	128		
					133		
					135		
		Σ=61			138	Σ=85	
					139		
					141		
					143		
					144		
					145		
					148		

dropouts and boy delinquents were not used in the 61 item boy delinquent scale in order to reduce overlap of the two scales. Thus there are 34 items in this scale which differentiate responses of boy delinquents from boy dropouts.

Since Keller's study included delinquent boys only, no comparison with the 85 item girl delinquent scale was made. Table 2 shows that 55 of these items are scored true and 30 false. There are 27 items common to those of the SII Boy Dropout Scale and the SII Girl Dropout Scale. There are 39 items common only with boy dropouts and 19 items unique to girl delinquents. Other items common only to girl dropouts and girl delinquents were not used in the 85 item scale. Thus there are 58 items in this scale which differentiate responses of girl delinquents from those of girl dropouts.

An attempt to describe the nature of the items in each of these scales is presented in Table 3. Categorizing the responses by inspection produced seven categories for each scale. The first is composed of items which describe behavior as linguistic oriented, that is, more focused on people and communication activities and more characteristic of females than males in United States culture. The boy delinquency scale contained 13 of these items, while the girls' scale contained only two. Conversely, the nonlinguistic category, focusing on dealing with inanimate objects and processes had only one item in the boys' scale but had ten items in the girls' scale. Thus a major finding of Keller's study, the prounced linguistic behavior of delinquent boys is verified only to a limited extent in the current male delinquent scale. At the same time delinquent girls evidence some nonlinguistic behavior more characteristic of boys-in-general than girls. This behavioral trend in the direction of the opposite sex appears to be a definite element in the behavior of delinquents of both sexes.

Table 3
Frequency of items and categories of response on the two delinquency scales listed in Table 2

Category	Male Key	Female Key
Behavior like girls (Linguistic items)	13	2
Behavior like boys (Nonlinguistic items)	1	10
Responses resembling low income family	18	22
Dissatisfaction with or lack of progress in school	17	33
Poor mental or physical health	7	12
Desire for immediate marriage	4	4
Desire to work rather than go to school	1	2
Total	61	85

The third category characteristic of delinquents is a tendency to select responses descriptive of members of low income families. This is not surprising. The boys' scale contains 18 such responses and the girls' scale has 22.

The fourth group of responses center about dissatisfaction with school or reflect awareness of a lack of progress in school. These follow the behavior expected of delinquents. The boys' scale contains 17 such items, while the girls' scale contains 33.

The last major category describing delinquent responses is that represented by items reflecting unsatisfactory mental or physical health. The boys' scale has seven such items and the girls' scale has 12.

Another category reflected responses indicating desire for immediate marriage. Each scale contains four such items.

The last response category is not as surprising as it might seem at first. It reflects a very limited trend toward work rather than school attendance, with one item on the boys' scale and two on the girls' scale. Thus while both male and female delinquents respond in a fashion which highlights their unhappiness about school, they do not indicate an interest or desire to go to work. Perhaps this is a cue for the counselor that he needs to modify the school environment in order to help potential delinquents, instead of finding them a job. Perhaps it also reflects the need of delinquents to learn more about the work role of adults in the community and thus change the traditional focus of low income groups on immediate income and immediate spending patterns.

Summary

These scales demonstrate that it is possible to use a standardized inventory to identify and work with both potential male and female delinquents to prevent delinquency either by helping them fit more adequately into their

environment (such as having linguistic activities available to the boys and nonlinguistic activities available to the girls), or by helping them modify goals, attitudes and beliefs. This may mean a modification in school curricula and other training programs to make them more meaningful to potential delinquents. It certainly indicates movement toward an educational or vocational program where attitudes and beliefs characteristic of low income groups can be modified to help these individuals live more effective lives in terms of planning toward long-term goals. At the same time these potential delinquents can be screened more thoroughly for poor mental or physical health and remedial programs instituted. Marriage or a job is probably seen by these individuals as an escape, rather than a truly desirable goal. Only about one third of the items in each scale were common to dropouts of the opposite sex. Thus the scales have limited overlap with dropout responses and should be useful in addition to dropout scales to identify two groups with whom the school counselor and his colleagues in other government and community agencies can do preventive counseling.

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APPENDIX A

COMPARISON OF THE KELLER BOY DELINQUENT KEY WITH SUBGROUP KEYS OF THE RHODE ISLAND STUDY

Keller	Key X	Key Y	Keller	Key X	Key Y
1 T	.05	-	52 T	.05	.10
4 T	.20	.05	53 T	.05	-
8 T	.20	.05	56 F	.05	-
10 F	-	.20	57 T	-	-
11 T	.20	.01	58 T	.01	.01
12 T	.01	.01	59 T	-	
14 T			60 F	.01	$.\overline{01}$
15 T	$.\overline{01}$	$.\overline{01}$	61 T	.01	.01
17 T			62 T	.01	.01
18 T	$.\overline{01}$	$.\overline{01}$	64 T	_	.01
19 F	.20	.05	65 F	.10	.01
21 T		.10	66 T	.01	.01
22 T	$.\overline{05}$	.01	67 T	.01	.01
24 F	-	-	71 T	-	-
25 T	-	.10	72 F	.01	.05
26 F	-	-	73 T	.05	-
27 F	.20	.10	75 T	.01	.01
28 T	-	-	79 T	.01	.01
29 T	-	.10	80 F	.10	-
31 F	.01	.01	81 T	.01	.01
32 F	-	-	83 F	-	-
34 T	.01	.01	85 F	.10	.01
36 F	.01	.05	87 T	.01	.01
37 T	.01	.05	88 T	.10	.01
38 F	.05	.20	89 T	-	-
39 T	.01	.01	90 T	.01	.01
40 T	.01	.01	91 T	-	-
41 T	-	-	93 T	.05	-
43 T	-	.05	94 T	.01	.01
44 T	.01	-	95 T	-	-
45 T	.01	.01	97 T	.01	.01
46 T	.01	.01	98 F	-	.05
47 T	.05	-	99 T	.01	.01
49 T	.05	.01	101 T	-	.01
50 T	.05	-	103 T	.01	.01

Keller	Key X	Key Y	Keller	Key X	Key Y
104 F	-	.10	127 F	-	.20
105 T	.01	.01	128 T	.05	.01
106 T	.10	.01	129 T	-	.05
108 F	.01	.01	130 T	-	-
109 F	-	-	132 T	.20	.05
110 F	-	-	133 T	.01	.01
111 F	.01	.01	134 T	.01	.01
115 F	.01	.01	135 T	-	.10
117 T	.05	.01	138 T	.05	.01
118 F	.01	.01	141 T	.05	.05
119 F	-	-	143 T	-	.10
122 F	.01	.01	147 T	.10	.01
123 T	.10	-	148 T	-	.10
125 T	.01	.01			
126 T	.20	-			

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